NAME: DATE:

p1020: graded take-home open-note practice exam (version 219)

Question 1

Let f represent a function. If $f[26] = 13$, then there exists a knowable solution to the equation below.

$$y = \frac{f[2\,(x + 10)] + 15}{7}$$

Find the solution.

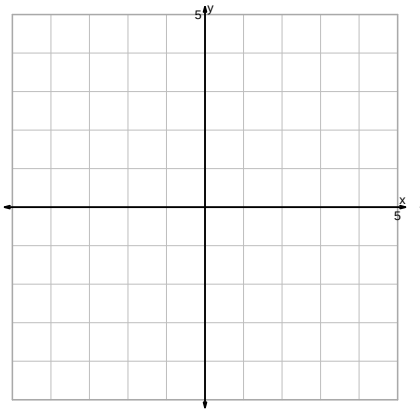
$x =$

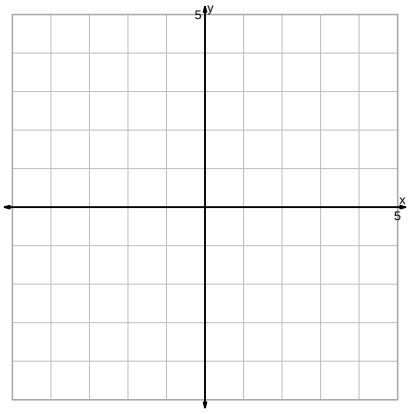
$y =$

Question 2

Graph the equations accurately. For each integer-integer point on the parent, indicate the corresponding point precisely. Also, with dashed lines, indicate any asymptotes.

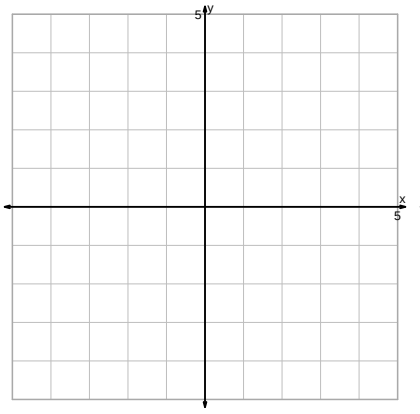
$y = 2^{\frac{x}{2}}$

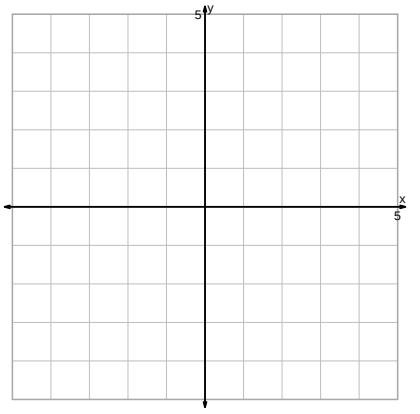




$y = \log_2\left(x - 2\right)$

$y = \left(2x\right)^3$

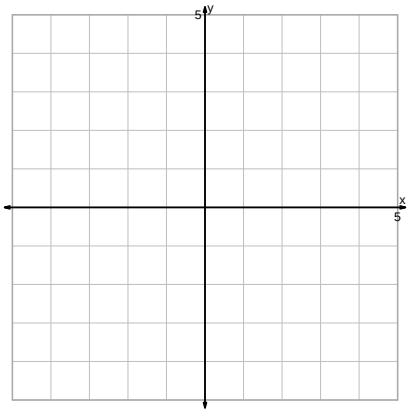


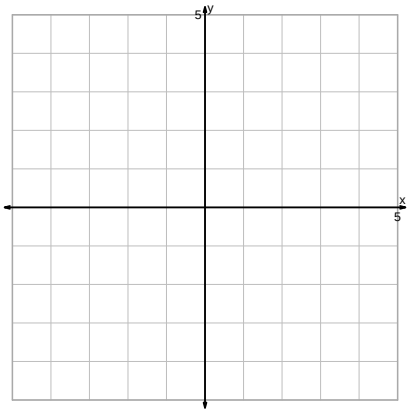


$y = \frac{\sqrt[3]{x}}{2}$

Question 2 continued...

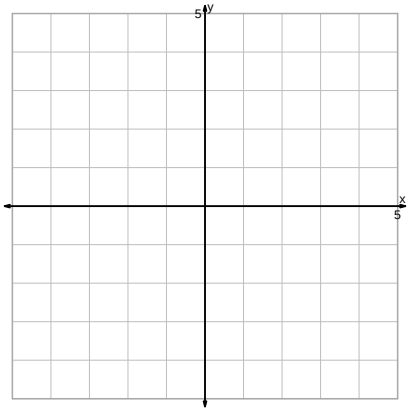
$y = -\log_2(x)$

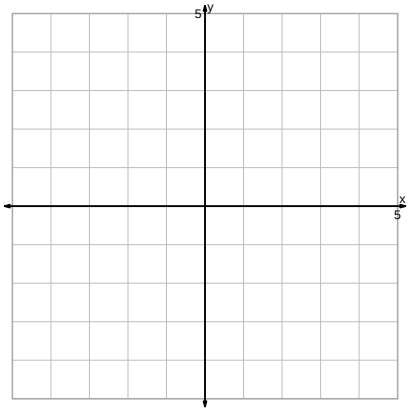




$y = x^3 - 2$

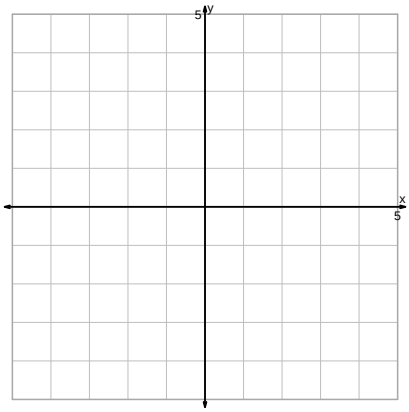
$y = 2 \cdot \sqrt[3]{x}$

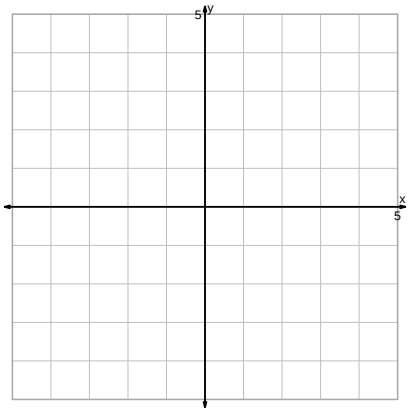




$y = \sqrt{x+2}$

$y = x^2 + 2$

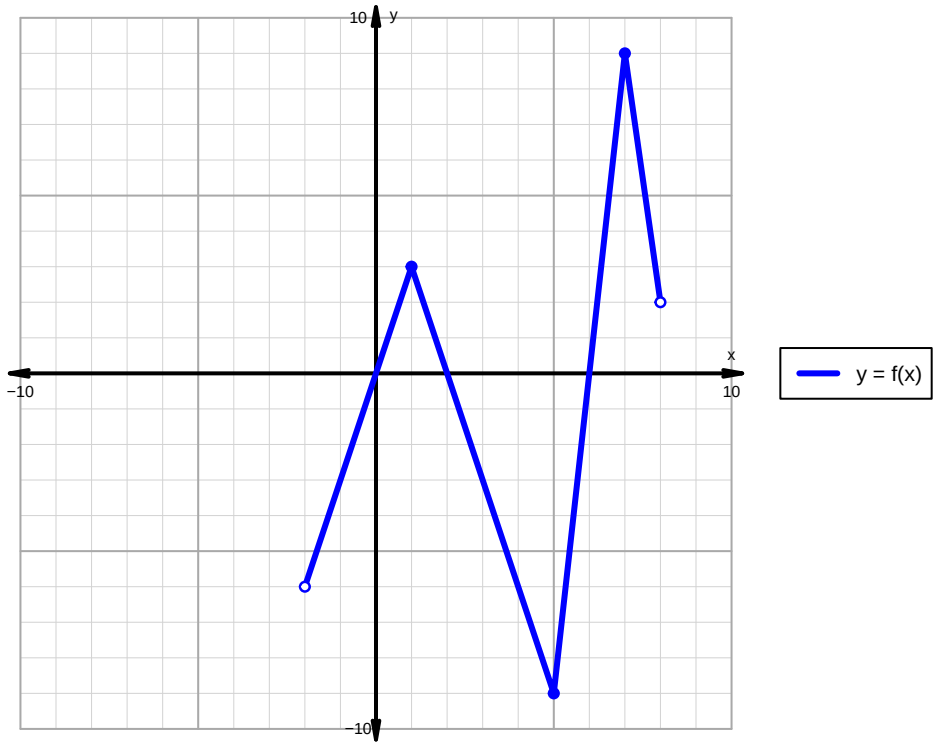




$y = 2^{-x}$

Question 3

A function is graphed below.



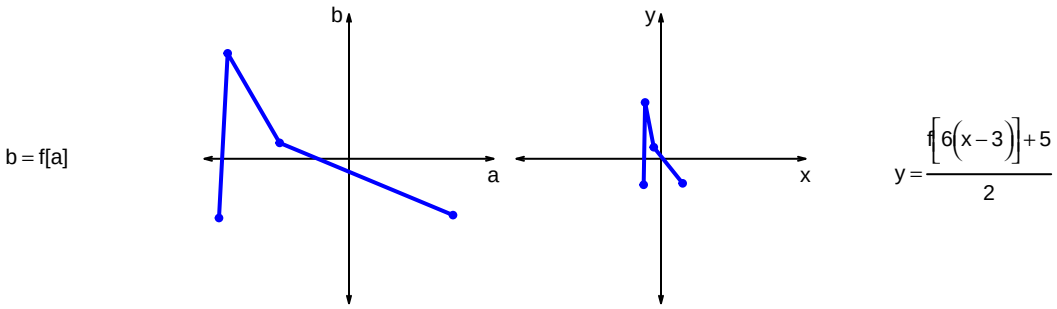
Indicate the following intervals using interval notation.

Feature	Where
Positive	
Negative	
Increasing	
Decreasing	
Domain	
Range	

Question 4

Let f represent a function. The curves $b = f[a]$ and $y = \frac{f[6(x-3)]+5}{2}$ are represented below in a table and on graphs.

a	b	x	y
-90	-41	-12	-18
-84	73	-11	39
-48	11	-5	8
72	-39	15	-17



a. Write formulas for calculating x from a and calculating y from b. (Or, write the coordinate transformation formula.)

b. What geometric transformations (using words like translation, stretch, and shrink), and in what order, would transform the first curve $y = f[x]$ into the second curve $y = \frac{f[6(x-3)]+5}{2}$?

Question 5

A parent square-root function is transformed in the following ways:

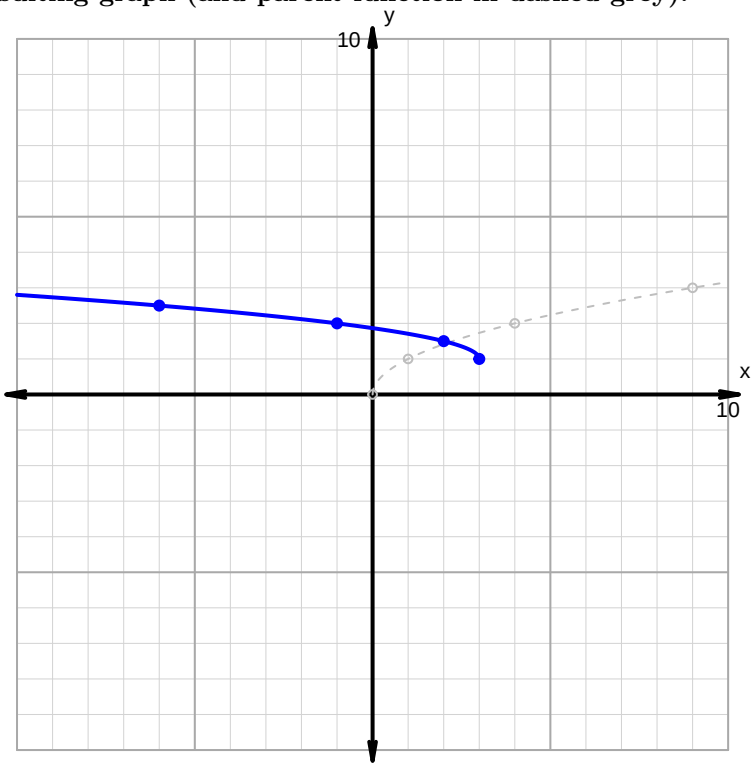
Horizontal transformations

1. Horizontal reflection over y axis.
2. Translate right by distance 3.

Vertical transformations

1. Vertical shrink by factor 2.
2. Translate up by distance 1.

Resulting graph (and parent function in dashed grey):

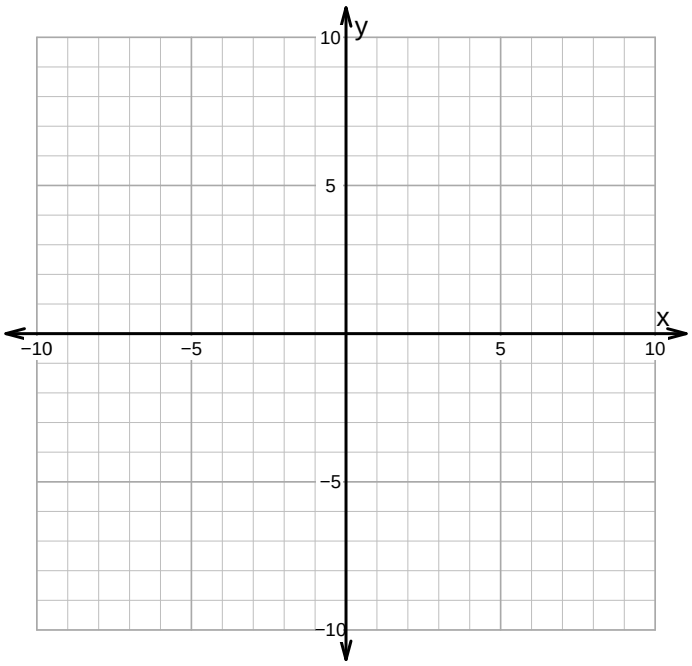


- What is the equation for the curve shown above?

Question 6

Make an accurate graph, and describe locations of features.

$$y = \frac{1}{2} \cdot |x + 5| - 2$$



Feature	Where
Domain	
Range	
Positive	
Negative	
Increasing	
Decreasing	